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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/806,662

03/23/2004

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EXAMINER

YEN, ERIC L

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/806,662	<b>Applicant(s)</b> KIKUMOTO, TADAO	
	<b>Examiner</b> ERIC YEN	<b>Art Unit</b> 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-50,52,54 and 55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-50,52 and 54 is/are allowed.
- 6) ☒ Claim(s) 55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. In response to the Office Action mailed 6/1/10, applicant has submitted an amendment filed 9/30/10.

Claims 1, 10-27, 38, 52, have been amended. Claim 53 has been cancelled.  
New claims 54-55 have been added.

### ***Response to Arguments***

1. Applicant's arguments with respect to claim 55 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 55 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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As per Claim 55, as discussed below regarding the 35 USC 112, 2nd paragraph rejection:

While the substance of what applicant is trying to claim is clear, the plain language of the claims necessarily has a scope that is different from what applicant intended. Particularly since applicant claims “wherein the center frequency of each of the frequency bands of the first musical tone signal is less than the center frequency of each of the frequency bands of the second musical tone signal”, each and every center frequency in the first musical tone signal must be less than the smallest center frequency in the second musical tone signal. This is because “less than the center frequency of each of the frequency band” includes the smallest center frequency in the second musical tone, and every center frequency of the first musical tone signal (which applicant describes can be voices [and thus can be the speech signal] as described in paragraph 74) falls within “the center frequency of each of the frequency bands of the first musical tone signal”.

What applicant claims is not taught in the original Specification and based on its necessary scope, constitutes new matter.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claim 55 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per Claim 55, applicant appears to be trying to claim something to the effect of where the center frequencies of the first musical tone signal and the center frequencies of the second musical tone signal is related in the manner described in Figures 7a and 7b (where all frequencies in Figure 7[a] are to the left of [i.e. less than] a particular frequency in Figure 7[b]). Paragraph 75 of the Specification, which applicant cites in support of the limitation “wherein the center frequency of each of the frequency bands of the first musical tone signal is less than the center frequency of each of the frequency bands of the second musical tone signal” in Claim 55, appears to describe this concept where “the center frequencies... of the analysis filter bank” (where the analysis filter bank is used to divide the speech signal, and thus the center frequencies of the speech signal are the center frequencies of the analysis filter bank, paragraph 38) “are made a fixed percentage smaller than those of the synthesis filter bank” (where the synthesis filter bank divides the musical tone signal, and thus the center frequencies of the musical tone signal are the center frequencies of the synthesis filter bank).

While the substance of what applicant is trying to claim is clear, the plain language of the claims necessarily has a scope that is different from what applicant intended. Particularly since applicant claims “wherein the center frequency of each of the frequency bands of the first musical tone signal is less than the center frequency of

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each of the frequency bands of the second musical tone signal", each and every center frequency in the first musical tone signal must be less than the smallest center frequency in the second musical tone signal. This is because "less than the center frequency of each of the frequency band" includes the smallest center frequency in the second musical tone, and every center frequency of the first musical tone signal (which applicant describes can be voices [and thus can be the speech signal] as described in paragraph 74) falls within "the center frequency of each of the frequency bands of the first musical tone signal".

Therefore, every center frequency of the first musical tone signal must be less than every center frequency of the second musical tone signal, including the smallest center frequency, as currently claimed.

While the substance is clear, this issue cannot be addressed with a simple objection because it is not clear how applicant intends to claim this limitation.

For example:

1. If applicant amends to recite where each center frequency in the first signal is less than at least one center frequency in the second signal, this does include what applicant wants to claim, but this is also broader in scope than what applicant substantively wanted to claim because all of the frequencies in the first signal (assuming they are all less than the highest center frequency of the second signal) are less than the highest center frequency, which means even if the center frequencies in the first signal are equal to the second signal (as long as there are less center frequencies than

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the second signal), then it falls within the claim scope, which is clearly not what applicant intended.

2. If applicant claims that the center frequencies of the first signal “fall between” or simply “not equal to” the center frequencies of the second signal, then this also incorporates the intended claim substance but does not seem to reflect the “less than” aspect where a given frequency is obtained by subtracting from a “next-highest” frequency.

3. A potential way to claim the substance is by claiming where the fixed center frequencies of the first division means are obtained by decreasing the fixed center frequencies of the second division means by an amount that does not cause a given decreased center frequency to be less than the original center frequency to the left of the decreased-center-frequency's original frequency, but Claim 55 is directed to the frequency bands of the signal and not the division means, and the change in claim language is too drastic to suggest in a simple objection.

Applicant may be trying to claim the broader claims in Example 1 and Example 2 since they are directed to the signals themselves, or applicant may be trying to claim the division means characteristics that are specifically described in paragraph 75. Since it is not clear which of these claim scopes applicant desires, and since, as currently claimed, Claim 55 necessarily has a scope that is entirely different from what applicant intends, the claim is unclear and rejected under 35 U.S.C. 112, 2nd paragraph.

***Allowable Subject Matter***

6. Claims 1-50, 52, and 54, are allowed.
7. The following is an examiner's statement of reasons for allowance:.

The prior art of record does not teach the combination of limitations in independent Claims 1, 37, 38, 52, including where new formant characteristics of the first musical tone signal are generated based on formant characteristics of the first musical tone signal, formant control information for generating the new formant characteristics from the formant characteristics, and the specified pitch information corresponding to the second musical tone signal, and setting modulation levels only at the fixed center frequency of each frequency band in the second musical tone signal based on the NEW formant characteristics that were generated, in combination with the remaining limitations of independent claims 1, 37, 38, 52.

Kikumoto et al. (US 6,323,797), as argued by applicant in the Remarks (page 16) does not teach setting modulation levels only at center frequencies of each frequency based on new formant characteristics of a first signal to set modulation levels only at center frequencies of the second signal, but rather using formant characteristics of the same signal.

Choi (US 2003/0014246) and Cano et al. ("Voice Morphing System for Impersonating in Karaoke Applications"), both teach voice changing/modulation based on characteristics which can be interpreted as generating new formants (since the changed voices necessarily have different physical characteristics defined by different



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formants), but this change and generation is done as part of the modulation/changing of the voice.

The independent claims, on the other hand, teach generating new formants and then modulating the signal. Since neither Choi nor Cano et al. teach two stages of new information generation (where the first stage is used to derive information that is then used by the second stage to generate new information), Choi and Cano cannot read on the claimed limitations.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. The following is a statement of reasons for the indication of allowable subject matter:

Claim 55 contains allowable subject matter based on its indirect dependence on independent Claim 1, but as discussed above, there are 35 U.S.C. 112 1<sup>st</sup> and 2<sup>nd</sup> paragraph issues as currently claimed and thus is not allowed.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC YEN whose telephone number is (571)272-4249. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EY 10/29/10

/Eric Yen/

Examiner, Art Unit 2626